
THE DAILY PLANET

Vol. 78, No. 70, Monday, January 30, 1989



SPECIAL SCIENCE ISSUE

THE ENVIRONMENT



Attention new and old Dailyites STAFF MEETING TODAY

17h00: be there or be environmentally unsound

MONDAY, JANUARY 30



2:00-3:00 A Demonstration
of Strategies for Assault
Prevention and Self-Protec-
tion for Women.

3:00-5:30 Discussion: "Do Fraternities Perpetuate a Negative
Attitude Towards Women?"

BOTH EVENTS TAKE PLACE IN UNION 107/8

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Speaking • Dizzy Spells • Sweating
• Nervous skin conditions (neuroder-
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P o l i s p e a k

Jan. 30 - Feb. 3

Schedule of Events

Tuesday, Jan. 31

11:00-12:00 Mme. Boudreau - Bill 178
(en Français) Societe St. Jean Baptiste
Lea 232

1:00-2:00 Guy Rivard - Quebec
Minister in Charge of Bill 101/178
Palmer Howard Theatre
2:00-2:30 Prof. Velk - "Getting
the Government off our Backs."
Lea 429

2:30-4:00 Prof. Watson vs. Prof
Chorney. Debate on the Canadian
Debt. Arts Council Room

7:00-10:30 Doctor of Sovietology
Armenian Independence in the
Soviet Union
Lea 26

Wednesday, Feb. 1

10:45-11:45 Gerard Leblanc
Journalist of La Presse
on Bill 178
Lea 232

2:00-5:00 Panel Discussion
Human Rights Violations in
Eastern Europe
Place - TBA

Thursday, Feb. 2

8:00 p.m.-1:00 a.m.
Mardi Gras Party
• Win a trip to the Caribbean
Union Ballroom

... And much, much more Royal Orr, Prof. James, Prof. Tay-
lor debate. Political win, lose or draw. (Lea Foyer)

• For more info., see booth in Leacock foyer & Union Bldg -
10-2pm all week.

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nian Student Association, Debating Union, Film Society, Travel Cuts.

THE POST GRADUATE STUDENTS' SOCIETY ELECTION TO BE HELD MARCH 6-9, 1989

Nominations are hereby called for
the following Executive positions

President

VP-Administration

VP-External

VP-Finance

VP-Internal

VP-University

and the following graduate student rep-
resentatives:

Senator (academic)

Senator (professional)

Board of Governors

**Nominations close NOON,
February 15, 1989.**

Nomination forms and instructions for
the candidates can be obtained from
THOMSON HOUSE, or the C.R.O. and
must be submitted to the C.R.O., c/o
Thomson House, 3650 McTavish Street,
**NO LATER THAN NOON, FEBRUARY 15,
1989.**

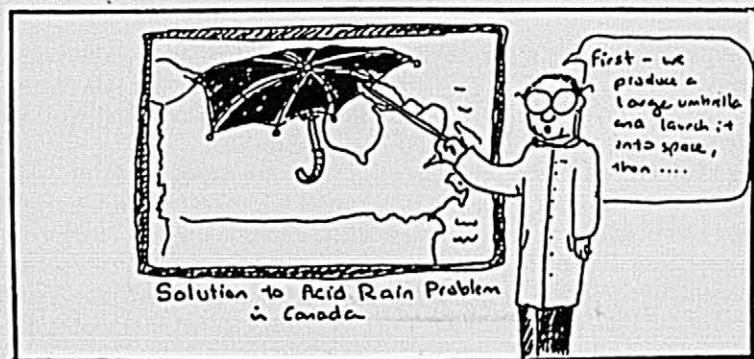
Eric Cheluget
Chief Returning Officer

Tune in, turn down, clean up

Picture a scenic pond with lily pads. The lily pads double in number each day, but after fifty days the pond will be completely covered and it will die. You are a painter who returns each day to paint the scene. On the 49th day the pond is half covered, and appears to have a long way to go before it will be completely covered. The next day it is completely covered. The pond is dead.

How do we know when we are on the 49th day—the point at which it is too late to take action to protect and conserve our environment? Environmental problems that grow at an exponential rate demand immediate attention to ensure action is taken before it is too late.

With this in mind, we believe it is of paramount importance to promote public awareness of environmental issues. Simply put, the situation demands a radical change in the way we think and act. The on-going ozone hole saga, global warming, and the ever-growing pile of garbage are real problems that threaten our planet's existence, or at least will irrevocably change it for the worse. This is not some theoretical future 'may-be', it is a practical present 'is'.



And the culprit? To a large degree, it is the Western philosophy that, unwittingly or not, most of us embrace. It is a philosophy that sets up culture/nature, male/female, positive/negative oppositions. It is the way we have been conditioned to think. It is the same philosophy that produces prejudice and hierarchy in our society. While we cannot undo our biases and conditioning overnight, we can, and must begin to critique our most fundamental beliefs. It is a tall order.

One often gets stuck discussing environmental catastrophe and predicting doom with an air of hopelessness—



but a lake does not become suffocated by lily pads overnight.

Each day hundreds of McGill students flock to the cafeteria and when we're done drinking our coffee, we throw out the styrofoam cups. Each cup represents one lily pad. Styrofoam contains CFCs which are largely responsible for the loss of atmospheric ozone and play a major role in the Greenhouse Effect. Everyone who throws out styrofoam cups helps take a chip out of the ozone layer, our only protection from the sun's ultraviolet rays. Action is easy—writing CVC to demand the abolition of styrofoam cups at McGill cafeterias and using ceramic cups instead, helps prevent the loss of our atmospheric ozone and global warming.



Many believe the individual has no control over rain-forest destruction. This attitude breeds complacency. Most of the beef used in fast-food restaurants comes from cattle which graze where rainforests once stood. Rain-forest soil only lasts about five years as pastureland. Boycotting these restaurants may force them to buy beef elsewhere and may help save some forest. Already Burger King in the U.S. has been pressured by the Rainforest Action Network to buy its beef from other sources. Yet all these companies still package their products in styrofoam containers.

How much aluminum cans, newspapers, plastics and glass ends up polluting our environment via incineration or landfill when all of these products could be recycled? Simply finding out where recycling depots are and recycling at home or office can make a substantial difference.

The situation is hopeless unless we begin to act responsibly. There is so much the individual can do to stop the degradation of our environment. Write Michael Wilson about the upcoming World Bank loan to Brazil (you don't even need a stamp), get your building to recycle, shun the car and take the metro. These are little things, but, like lily pads, they have a tendency to multiply quickly. To close your eyes and let someone else take care of it is, simply put, insanity.



Special Issue Coordinators:
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Tarek Razek
Arne Mooers

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Environmentalists: Assessing the damage

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THE PINCH OF Salt

Each year over 100 000 tonnes of salt are dumped on Montréal roads, while 200 tonnes per kilometre are deposited onto Québec highways. The salt is supposed to melt snow and ice, making driving and walking easier and, more importantly, less hazardous. Salt is very cheap, at between \$36 and \$28 per tonne, it seems to be one of the better bargains around. Yet it is costing untold dollars in structural damage and many believe its extensive usage may be wreaking havoc with our environment.

BY TARA PATEL

Salt is made up of two chemical elements, sodium and chloride, and is soluble in water. It melts snow and ice on roads to make a liquid brine. The brine then spreads to prevent falling snow and ice from sticking to the pavement, making snow removal easier.

The salt drains into the soil and down into the ground water or is washed into nearby rivers and streams. This sodium chloride can spread rapidly through the area. The salt can also travel further from the roads when it becomes airborne in spray created by passing cars and high winds.

According to McGill Biology Professor Joe Rasmussen, the chloride concentration in the Great Lakes has increased by over 50 times in the past 80 years. "There is no question that this is due to the salting of roads," says Rasmussen. "But it is not known whether salt has any effects on the organisms living in the shallow parts of lakes, like mollusks. It could cause shifts in the balance of the ecosystem."

Sarah Winterten, a researcher for Pollution Probe in Toronto, says that high concentrations of sodium chloride in the ground water could also pose a human health threat. Countless wells in Ontario have been closed over the past 20 years in areas where salt is used on the roads. People on low sodium diets are particularly at risk.

Salt spray from highways has also damaged roadside plants and trees, according to Gerald Hofstra, an environmental biologist at Guelph University, who has studied the effects of road salt for the past 20 years. Hofstra says salt accumulates on the outside of buds and twigs and at certain temperatures trees absorb the toxic accumulation. Salt tolerance is variable and fruit trees are the most susceptible to damage. First the fruit buds die, then leaf buds, and then new twigs and branches.

In a landmark case, fruit grower Michael Rokeby won a 29 year dispute with the Ontario Ministry of Transportation. Apple trees adjacent to a heavily salted highway on Rokeby's 113 acre orchard in southwestern Ontario were stunted, bare in places, and yielded fewer apples. Last October the Supreme Court of Canada upheld lower court rulings and ordered the ministry to compensate Rokeby and co-plaintiff Louis Schenck, a St. Catherine area peach farmer, for property damage and loss of revenue. The salt damage to Rokeby's orchard was deemed excessive and unreasonable.

The salt being continually sprayed on Rokeby's orchard during the winter months lowered soil fertility. Fruit growers from across Canada hope this case will set a precedent in other provinces so that they can save their own orchards.

In addition to the environmental hazards caused by salt usage, damage to pavement, bridges, concrete

According to McGill Engineering Professor P. J. Harris, road salt damage to concrete structures is caused mainly by the corrosion of the reinforcing steel within the concrete.

"It creates what I call the Dead Sea Effect in underground parking garages," says Harris. "Cars enter with snow, slush and salt on them. Due to evaporation, water with a very high salt concentration seeps into the concrete. ... This sets up an electrolytic cell which hastens corrosion. Soon the rust takes up more space than the steel, creating pressure which can cause breaks in the concrete itself."

Harris says McGill recently spent approximately \$50 000 repairing structural damage caused by salt to the underground parking facilities of the McIntyre Medical building. Harris still deems it unsafe. "I wouldn't park my car there."

"Salt causes the damage and it is worsened by poor maintenance," says Harris. "Obviously cost is a

alternative de-icing methods were used."

Salt remains the cheapest way to keep our roads free of ice. According to McGill economics professor Tom Velk, "road salt usage is definitely associated with externalities in its pricing. Externalities are costs sustained in addition to the actual cost of the road salt. These are attributed to the damage it causes."

biodegradable and sodium-free, hence eliminating the salt damage threat to soil, water and roadside vegetation.

The one major hurdle to widespread adoption of CMA usage is cost. Presently, CMA can only be imported from the United States at a cost of \$1200 per ton—35 times as expensive as salt. Researchers in Albany, New York,

CMA eliminates the salt damage threat to soil, water and roadside vegetation. It is a byproduct of wood pulp production, so Canada would be a natural producer as well as consumer.

A 1987 study concluded that the province of Ontario will have to pay a \$200 million repair bill for 2700 salt damaged bridges. New York City reportedly spends \$75 million every year to repair salt induced damage of electrical systems. It is also estimated that every Canadian car or truck driven where road salt is used sustains \$200 a year worth of corrosion damage.

According to Velk, salt damage actually increases the cost of road salt by approximately \$30 dollars per ton.

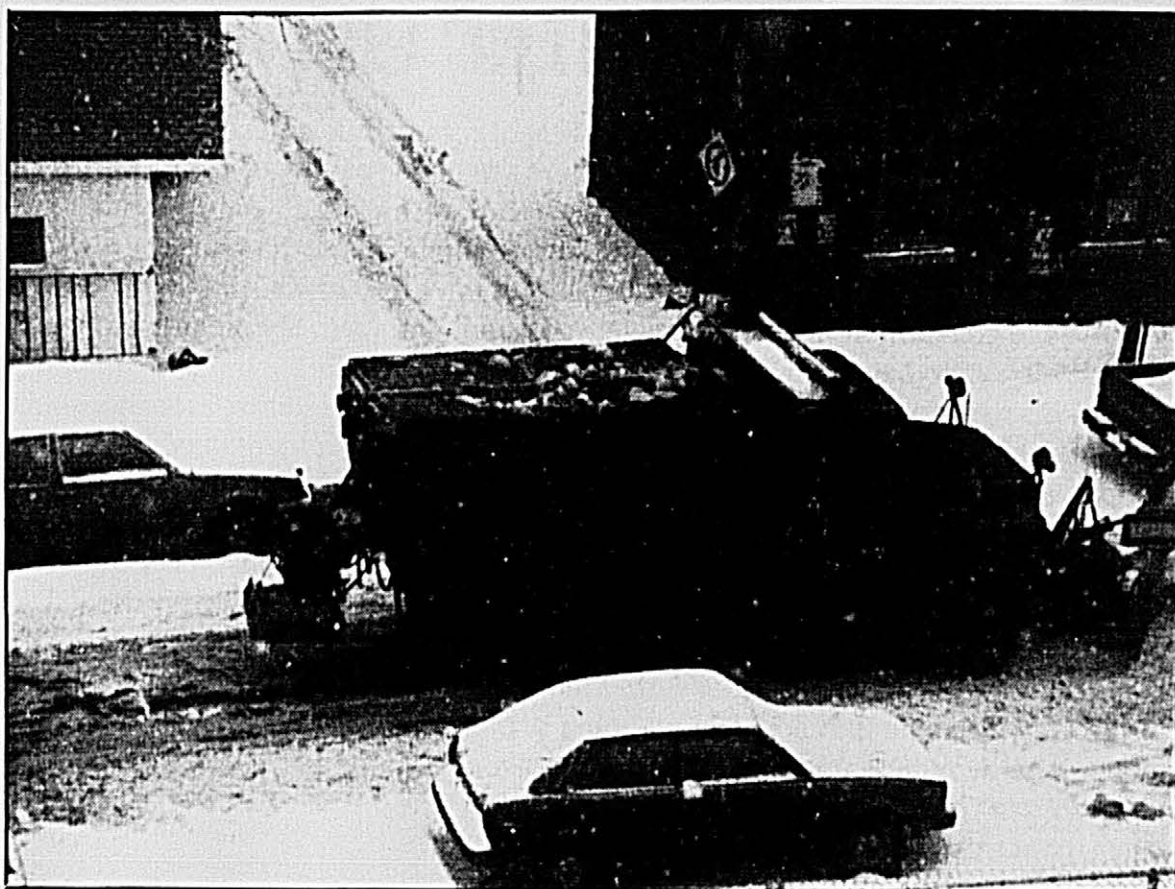
"This could be reason enough to switch to alternative de-icing methods," says Velk. "Political aspects such as the environmental concerns of road salt usage could cause the switch."

Researchers have been investigating viable alternatives to salt dumping. A study done in Ottawa showed that two chemicals, sodium formate and calcium magnesium acetate (CMA) were effective de-icers on the city's streets. Neither chemical contains chloride, the culprit of structural damage. CMA is

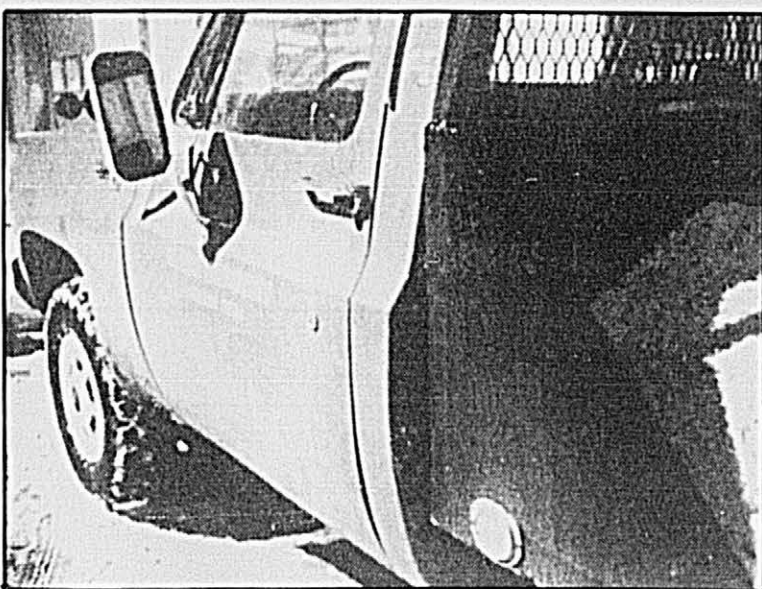
however, are working on a new CMA production method which could be available within five years, and which could cut its price in half. CMA is a byproduct of wood pulp production, so Canada would be a natural producer as well as consumer.

Velk believes CMA is the answer to both environmental and economic problems. "I foresee this as being potentially very economically interesting to Québec because over 11 million tons of salt are used in North America each year," he says. "This translates into an enormous market for CMA and a lot of money for Québec should the technology for its production be developed in this province."

NaCl



Salt may be damaging our roads, bridges, cars, boots, and maybe even our lakes



Salt at McGill is causing costly building damage

parking garages, underground cables and automobiles has been extensive.

deterrent, but structural damage to garages, overpasses and bridges would be significantly reduced if

News



Politics of hunger

by Nalini Johnson

World hunger is a political issue caused by unequal distribution rather than inadequate production, according to environmentalists at the second annual McGill-MIT Student Pugwash conference.

While the world can produce enough food to support a population explosion, many countries lack the money to pay for it. This leaves governments with a powerful means of controlling dissent.

According to MIT Professor Nevin Scrimshaw, natural disasters are often exploited by governments to achieve political goals. For instance, in Ethiopia the military government used famine to suppress armed opposition.

"Famines all have a political basis," Scrimshaw said. "The suffering in countries like Mozambique exists because of a pursuit of ideological aims at the expense of the population."

The best documented famine was the Bengali famine of 1943, Scrimshaw said. "There was a serious shortage of rice for consump-

tion because prices went up while wages went down."

This famine cost 1.5 million lives although there were no food shortages in the region.

"The US is not exempt from using hunger as a weapon," said Scrimshaw, citing American activities in Nicaragua where health improvement has taken a back seat to North-South politics.

UNICEF activist R. Padmini said the major cause of hunger was the inefficient distribution of food and resources. "Childrearing and food management are traditionally carried out by the woman in the household, yet the majority of agricultural trainees are men."

According to Padmini, households would improve if women had greater earning power. Men don't usually spend their money on the home, but women tend to invest all their time, energy and money in their families, she said.

A 1984 UNICEF study revealed 40 per cent of third world children under five have stunted growth and chronic undernutrition. Fifty per cent of women in childbearing years are subject to anemia. Yet

developed countries often worsen the situation by sending inadequate help.

Despite foreign aid, there have been more wars and malnutrition. John Hammock, director of OXFAM America, said these countries must go through a process of empowerment by learning to learn to use their own land and resources more efficiently and becoming agriculturally self-sufficient.

"It is a disaster when countries come to depend exclusively on foreign exchange. There are no quick fixes," said Eugene Donefer, director of the McGill International Development Program.

The speakers advocated the use of indigenous technologies and crops, saying that solutions cannot come from abroad because developed nations, such as the United States, export their new technologies and the problems inherent in them.

The politics of food have historical, social and economic roots. The problem is not technological. It is political because the distribution of available food is controlled by the few and wealthy, they said.



Daily photo by Arne Mooers

Terry Sabonis-Chaffee of the Rocky Mountain Institute

Free-market ecology

by Arne Mooers

Nestled in the shadow of the Colorado Rockies lies a building which may house answers to some of our environmental concerns. The Rocky Mountain Institute, founded in 1984 by Amory and Hunter Lovens, is a resource policy institute which deals with energy efficiency, water management, local economic development and problems of energy and security. In an effort to practice what it preaches, the institute itself is heated with passive solar power.

While most of the Institute's work deals with conservation, the word is seldom used, according to Institute researcher Terry Sabonis-Chaffee, "Unfortunately, it has been given the connotation of 'making do with less.' What we are more about is not changing a lifestyle so much as changing the level of consumption." This idea is in keeping with the Institute's free-market, mainstream philosophy.

Researcher Terry Sabonis-Chaffee considers the institute as a bridge. "We do a lot of legitimizing of work that has been done, but hasn't made it to the mainstream." According to Sabonis-Chaffee, the free-market philosophy is not political.

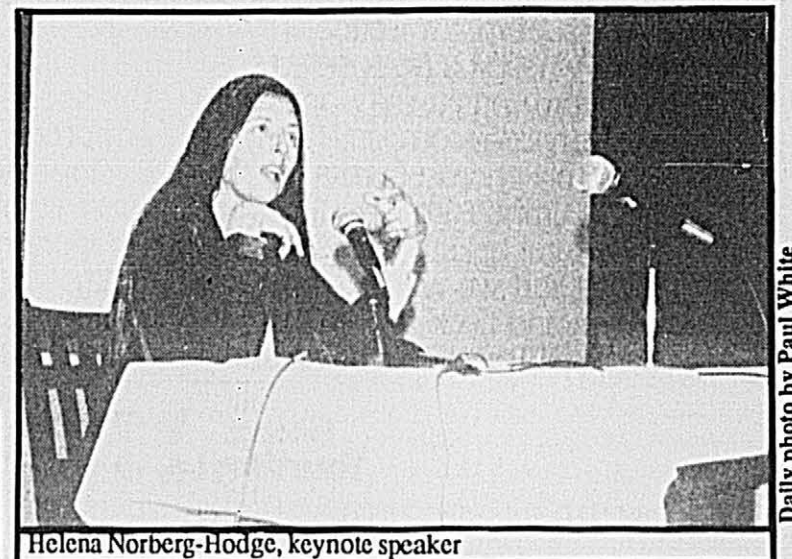
Along with the contract work that the institute is involved with, one of its major functions is to promote an increased awareness of energy abuse. The institute attempts to provide concrete examples of how small changes can, if applied on a large scale, radically

change consumption, making the same amount of energy go much further.

Sabonis-Chaffee offers some solutions to help reduce energy use such as insulation, high-tech windows, and the new compact fluorescent lights. The institute also examines several widespread instances of energy abuse. According to the institute, the daily energy consumption of all American television sets is equivalent to the daily energy production of a mid-sized power plant—when they are off. This is due to the "instant on" feature which continually warms the set so that it will turn on immediately.

Dr. Steve Chorover, a neuropsychologist at MIT who investigated the Love Canal incident of the seventies, and now known for his unorthodox views, recommends that engineers at universities devise and covertly install power switches to bypass the 'instant-on'. This "ecotage" (read ecological sabotage) would save a substantial amount of energy and serve as a valuable educational tool, impressing upon students the importance of energy consciousness in the classroom.

While never advocating so radical a course, this philosophy of replacing conservation rhetoric with practical methodology is the fundament of the Rocky Mountain Institute. The stop-gap solutions that they offer may lend the time needed to more fully tackle the fundamental questions concerning energy use in the long term.



Daily photo by Paul White

Helena Norberg-Hodge, keynote speaker

Western 'development' hits the Himalayas

Better off without us

by Dan Hogan

Tractors, polyester shirts, cement and corrugated metal are rapidly replacing wooden plows, wool robes and mud brick homes made for centuries by the people of Ladakh in Himalayan India near Tibet. The Indian government calls this 'development', but a Swedish linguist who has lived with the Ladakhi calls it a cultural catastrophe.

"Most catastrophes are a result of inappropriate development," said Helena Norberg-Hodge, who opened the McGill-M.I.T. Student Pugwash conference on January 20.

Over the past 14 years, she has observed the Ladakhi catastrophe — the erosion of an ancient Buddhist culture in the wake of Western development and cultural influence. Critics say she is fighting a losing battle at the centre she set up in Ladakh which carries out environmentally and culturally sustainable development projects. But she says it's a battle worth fighting because the survival of the Ladakhi culture is at stake.

"The Ladakhi are basically a happy people. But that spark, that enjoyment of life is disappearing in Ladakhi society."

Before opening their borders to tourists and Western-educated Indian development workers a decade ago, the Ladakhi had a so-called 'subsistence' economy — poor in

terms of GNP but rich in culture, she says. In small villages 10 000-14 000 feet above sea level, people would work four months per year, cultivating barley and wheat and tending sheep, goats and yak. They would also build sturdy, ornamented mud brick homes and use their grain surplus to buy Italian jewelry or brew beer. The rest of the year would be spent in festivities.

INAPPROPRIATE DEVELOPMENT

All that is changing now with the introduction of modern technology, she says. Yak are being replaced by more productive and expensive Jersey cows that can only survive at a lower altitude. That means people must abandon their mountain homelands.

Simple wooden plows are being replaced with modern tractors that often break down and are difficult to repair. Gasoline must be trucked into remote areas to fuel the tractors and other vehicles. That means building roads and service stations.

"In the past, villagers adapted to their environment. But now with the introduction of trucks, artificial roads are connecting artificial centres."

Introducing these 'labor-saving' devices has engrained upon the Ladakhi the Western notion that time equals money, Norberg-Hodge says. She remembers one Ladakhi woman who was surprised

that her sister — who had moved to the city and bought a kerosene stove, a refrigerator and a jeep — now has no time to see her because she works much longer than she used to in the village.

"Before when people worked, they would also enjoy themselves — talking, laughing, singing. They did not work at the pace of the modern machine, a pace that is difficult for the young and old to adapt to now."

Traditional weaving and house-building skills are also being replaced. Ladakhi children are separated from their elders — the traditional teachers — and are given an education similar to that given to a Western child. "Essentially, the Ladakhi are getting the education of a New Yorker, but they have no New York."

ALTERNATIVE TECHNOLOGIES

In response to what she saw as inappropriate development, Norberg-Hodge set up the Ladakh Ecological Development Centre. By building simple solar ovens, greenhouses and wind-powered generators, the centre's staff has "tried to sell the notion that sustainable development is modern."

She says the centre's projects can help raise the Ladakhi's living standard by promoting more decentralized development. Solar green-

continued on page 12

Recurring Disasters in Development: Breaking the Chain was the theme of this year's McGill-MIT Student Pugwash conference, held at the Massachusetts Institute of Technology, January 20-22.

To the Daily:

In her letter to the *Daily* (Wednesday, January 25) Brenda Posteski accuses Zeb Brown and Mitu Sen Gupta of having written a "biased and distorted" article on the God debate. Her own criticisms however, are not only both biased and distorted but also incredibly closed minded.

To begin with, the very suggestion that a review of an event in the Art and Entertainment issue of the *Daily* must be an objective account of the event is ludicrous. The review, by definition, represented the personal views of Brown and Sen Gupta as it should have.

Having based her arguments on

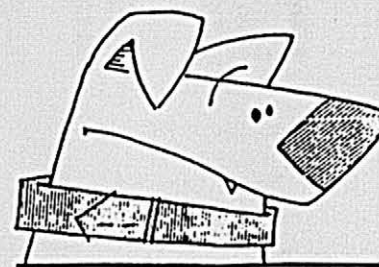
shaky foundations (to use a polite phrase) Miss Posteski goes on to negate the statement that "Deslauriers was the clear winner" of the debate, by succumbing to statistics. She points out that "the received ballot responses for who presented a better case were remarkable close". By the same token, then, we must assume that Hollywood's biggest box-office lists are the best films or musicians who make it to the top ten are the most remarkable artists. Conducting a referendum over the existence of God is hardly the best way of going about the question!

Miss Posteski then goes on to make a very serious (and very revealing) mistake in quoting Prof. Deslauriers (Seed, note). Finally—

and this is just the best—she concludes that "Christ was the most influential person in all of history" and then one of the proofs for this is the fact that "we even form our time around him". Without getting into the intolerant and racist implications of this claim, I should like to have the honour of enlightening Miss Posteski to the fact that not everyone agrees with her (Moslems, Hindus, Buddhists, Jews, Sun worshipers, and Atheists, to name a few.)

But let us not blame poor Miss Posteski. Let us instead blame the environment which produces closed minds like hers and idiots like Mike Horner.

Aran Peternej



To the Daily:

Re: Supervision for the *Daily* from January, 25, 1989.

Perhaps a direct supervisory committee is necessary to act as the *Daily's* watchdog. You have again proven this.

As the author of the mentioned letter of January 25, I am both shocked and appalled that you signed my name as Charles Robinson as opposed to the name I typed out for you, Charles Robison, which incidentally is my real name.

My Scottish ancestors vex you for the indecency done to our name and our Clan. If you wished to offend me yet another time you have.

However, this time you, like any offender of Scotland, you will have to answer to the Ghost of Robbie Burns, who, incidentally, is probably a better representative of McGill's population than your Board of Directors.

Charles Robison
Political Science, U2

ed note: When last we heard, Burns was never directly elected by the student body.

To the Daily:

The letters that have been written in response to the *Daily's* article, "Chewing the fat over that God thing," would seem to indicate that this-i.e. Does God Exist?—is a much more lively topic than most suspect. Therefore, I'm sure few eyebrows were raised when Sid Archer called the debate a "silly event, worthy of a less-than-serious review."

The mere fact that 700-800 people turned out to watch the de-

bate, to the surprise of the organizers as well as Professor Desaulniers, casts doubt on Mr. Archer's statement. We may be living in a relatively apathetic age (relative to '60s-style student activism) but this does not mean that the issue is dead, nor by any stretch of the imagination, settled.

McGill Christian Fellowship should be commended for bringing this issue back into the public forum, where it can be properly treated in a university environment. Serious students continue to struggle with the question as any seeker of Truth must do. Unfortunately, in an institution where the emphasis is on the intellectual, the spiritual is often overlooked or ignored altogether.

Dr. Charles Malik, a holder of a Harvard Ph.D in philosophy, 50 honorary doctorates, and former president of the General Assembly of the United Nations, puts it this way:

"I search in vain for any reference to the fact that character, personal integrity, spiritual depth, the highest moral standards, the wonderful living values of the great tradition, have anything to do with the business of the university or with the world of learning."

The *Daily's* flippant treatment of the debate and its appellation of Mr. Horner's philosophical argument as "crackerbarrel" is nothing but flatulence and an affront to the collective intellect of the McGill community. Three past presidents of the American Philosophical Association (APA)—upon whom Mr. Horner based his arguments—Professors Alston, Smith, and Plantinga are outspoken theists as well as Professor Lonergan ("The finest philosophic thinker of the 20th century"—*Time*). Those who were unable to attend the debate deserve a much more mature and serious account than that afforded by the *Daily*.

Raymond Butcher
U2 Political Science

Letters continued on page 10

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EVENTS

McGill Students' Council: Annual General Meeting. 12:00 p.m. Union B09/10.

McGill Southern African Committee: CKUT Radio (90.3 FM) Show "Amandla" presents a one hour history of resistance in South Africa. 2:00 p.m.

Sexual Assault Awareness Week: 12:00-1:00 p.m.: Speaker on "Sexual Abuse of Native Women", Leacock 232.

2:00-3:00 p.m.: A Demonstration of Strategies for Assault Prevention and Self-Protection. Union 107/108.

3:00-5:30 p.m.: Discussion: "Do Fraternities Perpetuate a Negative Attitude Towards Women?" Union 107/108. All Welcome.

JEAN ELSHTAIN, Professor of Political Science at VANDERBILT UNIVERSITY, TENNESSEE

will speak on

"THE PROBLEM OF PEACE"

On MONDAY, JANUARY 30th

at 3 p.m. in Lea 738

Professor Elshtain's research interests are in feminism, political theory and international relations. Her writings include: *Public Man Private Woman: Women in Social and Political Thought* (1981) *The Family in Political Thought* (1982) *Women at War* (1987)

Cultivating an ecological conscience

by Laura Gartner

Environmentalism surfaced on Earth Day, April 22, 1970. On that day, hundreds of thousands of North Americans demonstrated and/or voiced their concern for the fate of the earth. Since then, our society has amassed a multitude of environmental agencies and interest groups to monitor institutional action on pollution control and the conservation and preservation of environmental resources. Environmental education and environmental law have emerged as academic disciplines and public concern for the quality of the environment has been steadily growing.

In spite of these advances, we still suffer the consequences of toxic chemical spills, acid rain, soil erosion, radiation contamination from nuclear accidents, and other ecological catastrophes. Why have we not found solutions to these problems? Some people believe we have not yet reached the root of the problem, that installing scrubbers on smokestacks and adding lime to neutralize acid-stressed lakes will not relieve the crisis. These people, advocates of 'deep ecology', believe a re-examination of our attitudes towards nature will bring about a deeper understanding of the natural world and our place within it. For Bill Devall and George Sessions, two prominent deep ecologists, the environmental crisis is fundamentally, "a crisis of character and of culture."

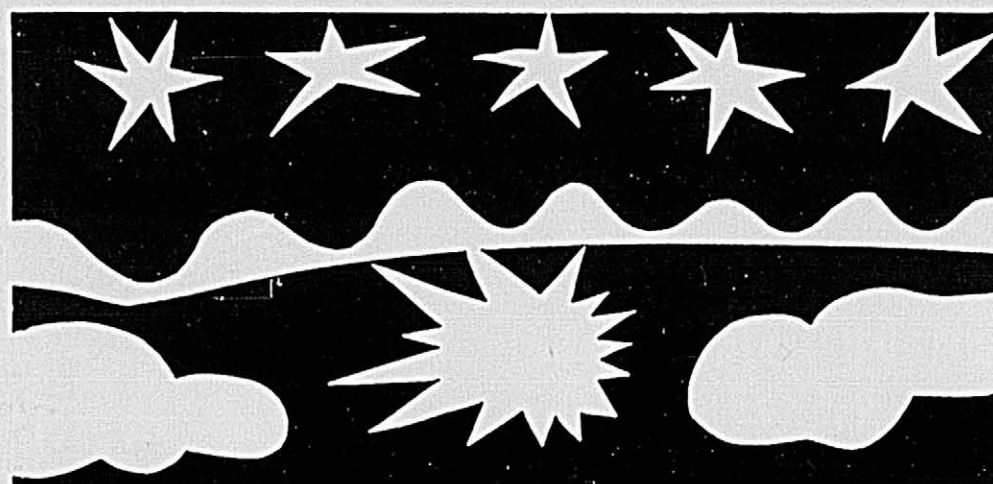
Deep ecology was founded in the early 1970s by Arne Naess, a Norwegian philosopher. Naess distinguishes between 'shallow' ecology which attempts to find the technical source/solution of an environmental problem, and "deep" ecology which seeks the religious, educational, economic, political and cultural sources of an environmental problem. As Neil Evernden, an ecophilosopher from York University, writes, "Our perceptions and expectations of the environment are inseparable from our moral commitment to particular beliefs and institutions." Deep ecology questions our values, goals and the very structure of our society. It is philosophy in an ecological context.

Deep ecologists are frustrated with the compromising, managerial approach to the natural world practiced by much of the environmental movement. Devall and Sessions portray the activities of mainstream environmentalists as "made to reform only some of the worst land use practices without challenging, questioning or changing the basic assumptions of economic growth and development. In order to play the game of politics, they will be required to compromise on every piece of legislation in which they are interested."

Instead, deep ecologists advocate cultivating 'ecological consciousness' based on peoples' deep personal relationships with 'wild' nature and other human communities. According to Alan Drengson, editor of *The Trumpeter*, a Canadian ecophilosophy journal, the goal of deep ecology is "to come to recognize that there is more to self than narrow subjective human self... (that) deep ecology is a response not only to environmental degradation, but to a very deep problem in modern human consciousness."

Deep ecologists, therefore, strive to formulate an holistic religious and philosophical worldview which would foster 'self-realization' and 'biocentric equality', the two 'ultimate norms' developed by Arne Naess. Self-realization, as defined by the deep ecologists, involves the attainment of maturity and spiritual growth through identification with the nonhuman world. Biocentric equality represents the intrinsic worth and equal right to life of all organisms in the biosphere. Yet deep ecology is not an organized social movement with fixed principles. It is a contemplative approach towards becoming sensitive to the integrity of all beings in the world.

Biocentrism is the common denominator in deep ecology. Adherents of this philosophy, however, may differ in their approach to creating an ecological conscience. For example, Devall and Sessions, in their text



Deep Ecology: Living As If Nature Mattered, provide the most structured guideline towards practicing deep ecology. They outline eight basic principles to follow and suggestions for personal direct action which range from quasi-spiritual rituals of song and dance to activity in organized social movements and politics.

For Stuart Hill, professor of entomology and an 'holistic' ecologist at Macdonald College, 'ecoaction' addresses the inadequacies in our psychosocial evolution as well as promoting greater understanding of ecological realities. In a recent paper entitled "Eco-values-Ecovision- Ecoaction: The Healing and Evolution of Person and Planet", he

Deep ecologists have suggestions for personal direct action which range from quasi-spiritual rituals of song and dance to activity in organized social movements and politics.

writes, "...most of humanity remains psychosocially primitive as evidenced by the persistence of oppressions, hierarchies, compensatory, addictive and compulsive behaviours... In particular, the ways in which most children are conceived, carried, born and raised leaves deep psychological scars on them... As a result of this the planet has also been scarred and both person and planet are in need of embarking on a path of healing."

Deep ecology advocates breaking out of the subject/object dichotomy which defines the Western understanding of society and our attitude towards nature, according to Neil Evernden, author of the book *The Natural Alien: Humankind and Environment*. Evernden criticizes the conventional definition of experience: "one's experience is considered subjective and therefore not real... So the personal experience that moves the environmentalist in the first place is the unreal part... Instead, you talk about the material things which are believed to be the expression of his concern, like polluted water."

Personal values and emotions, the very traits rejected by the founders of the reigning mechanistic philosophy as irrelevant to understanding the world, are embraced by deep ecology.

The deep ecologists' message is that the world requires a transformation of consciousness to bring about the goal of sustainable societies which respect all living things. Such reform would require the development of decentralized institutions utilizing ecologically safe technology. This is where the political connection emerges. Many deep ecologists view the Green Party as a transforming political force with which they have some unity in purpose. The Greens seek change on many levels including our interaction with the nonhuman world. The platform of the Japanese Green Party includes the goal to "harmonize the lives of human beings with the natural environment, and discard materialism, the pursuit of profit, and the idea that human beings are the centre of all things."

The Green movement is dedicated to grass roots democracy and avoids any hierarchical decision-making, thus encouraging social responsibility. Yet critics of this alliance question how an essentially anarchistic group can bring about a cultural revolution. In response, the Greens have been encouraging 'exemplary action' for social change which encompasses consumer boycotts of non-ecological products and changes to personal lifestyles or even the establishment of alternative ecological communities.

However, Robyn Eckersley, in her writings on ecopolitics, says exemplary action is not enough, that "structural change is essential in order to break down the power and resistance of dominant vested interests." Essentially, the Green Party is still trying to figure out how to link the various movements (peace, environment, native, women) which claim to support it. Yet once the theoretical understanding has been worked out, a more secure and permanent base for further action can be established.

Notwithstanding this political union, deep ecology faces a variety of criticisms. The concept of biocentrism is particularly difficult to actualize. For example, if all species have the equal right to life then must we all be vegetarian? Do plants have as equal a right to live as do animals? Where exactly do humans fit in? This concept of species egalitarianism is vague at best.

Ultimately, deep ecology ignores the social and historical basis of the ecological crisis. Social ecologists such as Murray Bookchin argue that the domination of nature resulted from the emergence of hierarchies, social constructions which must now be dismantled. Bookchin criticizes deep ecology for being "vague, formless, often self-contradictory".

While it may not have much concrete to offer, deep ecology has broadened the spectrum of environmental action. If deep ecologists can drop the spiritual baggage and focus upon decentralist political activism, they may have an even stronger influence.

For further reading: *Deep Ecology: Living as If Nature Mattered*, by Bill Devall and George Sessions, 1985. Also: *The Trumpeter: Voices From the Canadian Ecophilosophy Network*, Allen Drengson, ed.



FREE TRADE AND THE ENVIRONMENT

Selling out

"The free trade agreement is a commercial accord between the world's two largest trading partners. It is not an environmental agreement. The environment was not, therefore, a subject for negotiations nor are environmental matters included in the text of the agreement."

BY PHILIPPA SHEPHERD

Thus Mulroney's Conservative government categorically dismisses concerns about the accord's impact on our environment.

Yet there are several reasons for dismissing the government's convenient divorce of big business and environmental concerns. Article 904 of the Free Trade agreement guarantees American access to a share of Canadian resources in perpetuity, thereby blocking our ability to use resource allocation and pricing policies to regulate and manage our own resources.

Secondly, U.S. business considers Canadian subsidies and incentives designed to address environmental concerns, like encouraging reforestation and decreasing sulphur emissions, as non-tariff barriers to trade. They can now be challenged under Articles 905 and 2011 of the agreement.

As well, economic pressures created by the need to increase supply while remaining competitive could be relieved by lowering environmental standards. Canadian and American industry have already begun lobbying to achieve this goal.

The omission of environmental protection issues and sustainable resource management from the Free Trade Agreement ignores its disturbingly far-reaching potential impacts. The Canadian Environmental Law Association, The Canadian Environmental Advisory Council, Le Mouvement pour L'Agriculture Biologique, and many other environmental protection groups have repeatedly pointed out specific implications in the areas of acid rain, energy, forests, agriculture, water, pesticides and wastes.

Sustainable development will probably be the greatest challenge faced by policy-makers under the terms of the new trade deal. In order for sustainable economic development to occur, governments must adopt far-sighted policies which integrate the environment into economic policy. We can no longer afford the increased exploitation and consumption of our resources which has been touted as one of the great benefits of the Free Trade Agreement.

U.S. law varies radically from state to state, some require minimal pollution control standards for industry and American resistance to efforts to reduce sulphur emissions has been notorious.

Yet Chapter 6 of the Free Trade Agreement outlines a formula for harmonization of American and Canadian standards, and with the powerful industrial lobby of both countries in full swing, new pressures will exist for Canada to lower its standards to meet those of some states. As well, Canadian subsidies for pollution control can be challenged under American Trade protection law.

Diminished authority to regulate energy exports will require an increase in coal-fired electrical power generation in order to meet both domestic and export energy demands. These increased energy demands will exacerbate the already great environmental problems associated with energy production. Coal, a major source of acid rain, is used in many electrical generation plants, as is nuclear power, leaving us with radioactive waste to dispose of. Hydroelectric plants have devastating effects on local ecosystems, as does oil and gas exploration. If the principles of sustainable development are not adhered to, our increasing demand for new energy sources will likely



FREE
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override existing environmental protection laws.

One in every ten Canadian jobs is somehow connected to our forest industry, but only one fifth of the area harvested each year is replanted. This minimal reforestation is heavily subsidized by the government and has been challenged under U.S. law. In fact, already in B.C. the final culmination of a softwood lumber dispute resulted in the halting of all replanting subsidies to the forest industry.

Pesticide use is another area in which high Canadian standards are being challenged. In Canada, under the Pest Control Products Act, the safety of a pesticide must be demonstrated before it can be put

to use. In the U.S., the risks of each new pesticide are balanced against the benefits in determining its accessibility. As a result of this risk/benefit analysis, there are seven times as many pesticides in use in the States as there are in Canada. Schedule 7 of chapter 7 of the Free Trade Agreement says both countries must work toward equivalent guidelines, technical regulations, standards and test methods for pesticides, and Canada specifically agrees to work toward equivalency in the process of risk/benefit assessment. In other words, our standards will be lowered to meet those of our new trade partner.

An even more frightening effect of the Free Trade Agreement will be in the area of waste disposal. Canada has had free trade of hazardous wastes with the United States since 1986, and since their disposal standards are higher than ours, shipment of waste up north has been an enticing prospect for American industry. The new agreement will severely limit our ability to implement recycling and reuse programs. Should we decide to ban all products incorporating CFCs to enforce the use of recyclable packaging, or any other such program, we would have to win a dispute settlement first. We would be battling industry from both countries, ultimately allowing American corporate interests to have a say in determining Canadian policies.

Short-sighted declarations that 'our biggest problem is not shortage but abundance' are being made by the same administration that proclaimed unequivocal support in the United Nations General Assembly for the recommendations of the National Task Force on Environment and Energy. This task force advocated the responsibility of governments to act as trustees for the resources which must be kept intact for future generations.

The Free Trade Agreement affects environmental issues throughout and cannot be considered an isolated commercial entity. Unfortunately, the Conservative administration saw fit to use closure to ram the deal through the House of Commons, so some irreversible damage has already been done in terms of environmental conservation. We must now lobby for conscientious diligence on the part of our negotiators so that no more ground is lost. We must demand thorough environmental impact studies for each and every new project proposed by both American and Canadian industries, and we must demand that harmonization occur in an upward direction. Most importantly, we must all—Canadian and American—work together to ensure a healthy future through policies of sustainable development and environmental protection.

PUTTING

McGill currently uses upwards of 100 tonnes of fine paper, newsprint, and computer paper each year. Since it takes about nineteen trees to produce a single tonne of paper, this consumption amounts to well over 13 000 trees per year. But this may be cut back significantly over the next year through a campus-wide recycling program starting up this February.

by KELLY GALLAGHER-MACKAY and ST

The paper recycling project is being organized by QPIRG/GQIRP in conjunction with Project Ploughshares and the McGill administration's Department of Physical Resources.

Collection bins will be located in three buildings on campus: Burnside Hall, the Student Union Building, and (provisionally) the Education Building. According to Tom Heintzman, one of three QPIRG Recycling Coordinators, the main targets of this project are fine paper, i.e. looseleaf, photocopies, and computer paper, as well as newsprint.

In addition to the permanent bins, a weekly drop-off facility will be established for students to bring their newspapers from home.

janitorial staff will be responsible for removing paper from the bins. Students will be responsible for ensuring the paper is properly recycled.

Jeannie Samuel, QPIRG Coordinator, is confident a number of volunteers will be able to make the project a really encouraging one. She expects a wide range of student interest in the project, and is confident their enthusiasm will lead into effort to use the program as an organisational asset.

"It's going to take a lot of effort both on the



A McGill student takes the first step to ecological conservation.

Start-up costs for the project are being covered by QPIRG and the administration. QPIRG is funded by the student body through a fee instituted by last October's student-initiated referendum. Once the project gets going, however, *Récupération Maronniers*, the recycling company contracted to process the paper, will be paying a set price for each tonne of paper received. All profits will be pumped back into the recycling program for maintenance and upgrading.

The large-scale program will require a considerable amount of organization and student support. While McGill's

staff to ensure that the program is successful. QPIRG would like to target more buildings for the program, as well as expand the variety of recyclable materials, including plastics.

McGill administration, who is overseeing the project, said the university is currently in the process of implementing the pilot program before making any further decisions.

The Students' Society of McGill University, in cooperation with the administration, is currently initiating a program of its own.

Feature

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pop machines, as well as in CVC-operated cafeterias such as those in the Union and Arts Buildings.

RECYCLING ACROSS MONTREAL

While extensive recycling programs already exist in Ontario (you may be familiar with the blue bins, which are the same as the ones that will be appearing here at McGill), Québec has by contrast been relatively slow in taking action. Of the more than 1.5 million tonnes of waste disposed of each year on the island of Montréal, some 35 per cent is recyclable. Each Montréal citizen produces roughly 175 kilograms of recyclable household waste each year.

Yet response to recommendations made in 1987 to the city of Montréal by its Comité ad hoc sur la récupération et le recyclage has been slow in coming. The committee's report cites the overuse and imminent closure of three dump sites on the island of Montréal as sufficient reason to start a recycling program immediately.

"Recycling is a valuable first step towards recognizing the fragility of our environment, and a first step towards a change in our attitudes," said Heintzman. "To recycle represents action taken against our current, often ecologically unsound system of waste disposal."

1987 there were at least 24 different unidentified chemicals regularly produced by the incomplete combustion of waste. The environmental and health implications of these by-products remain unknown.

The second major problem with mass-burn incineration is air pollution. Municipal incinerators operate at about 500 degrees Celsius, too low to completely destroy plastics in domestic waste. As a result, highly toxic contaminants such as dioxins and polychlorinated dibenzofurans are released in significant quantities.

The other common form of waste disposal is landfilling. This simply involves dumping garbage into a carefully maintained pit. But even when the deposited waste is officially classified as non-toxic, as it is in municipal dumpsites, these sites are unsafe. Moisture seeping through the waste often becomes contaminated, producing toxic leachates.

Although the sites are supposedly sealed, either by their physical location (e.g. abandoned granite quarries), or by an installed plastic liner, there is often a real danger that leachates may penetrate the seal. Groundwater contamination is also a problem, especially in areas where groundwater constitutes a significant portion of the drinking water.

In contrast to these programs, recycling is a cheap alternative. Recycling is of benefit to the consumer and the waste management industry alike, as well as to the environment. "Recycled products are both ecologically and economically cheaper to produce," said Robert Demers of Récupération Marronniers.

"It represents a change in people's attitudes, and promotes sensible strategies of waste management in a practical way, including the 'three Rs', which are to Reduce, Re-use and Recycle," said QPIRG Board Member Shannon Dodge.

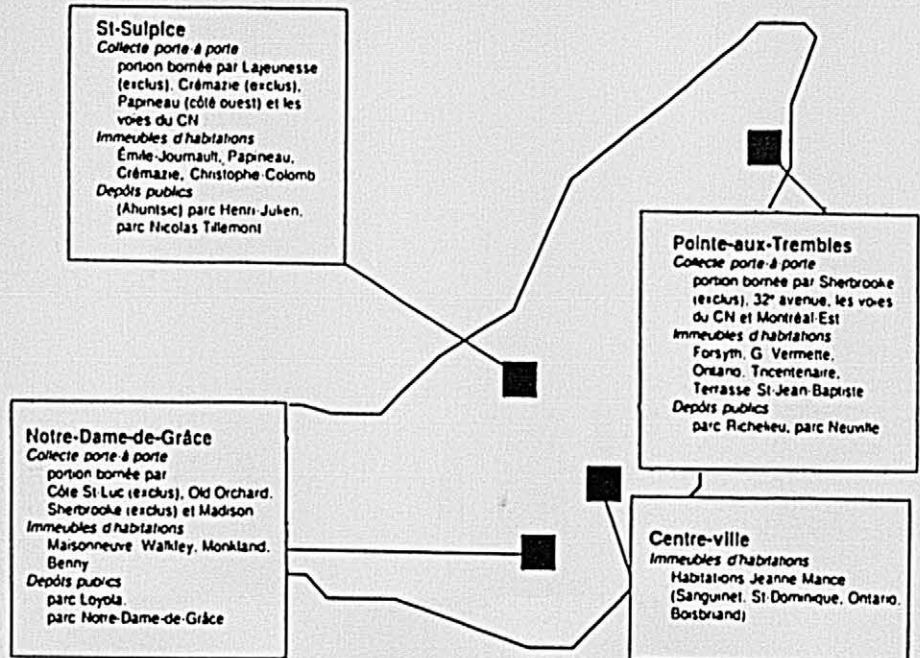
A substantial change in our habits may lead to an increased awareness of the amount of paper consumed and wasted in our society. Professor Barbara Nichols of McGill said that "Our ordinary generation of paper - photocopies, packaging, newspapers - has built into it a huge amount of waste."

Packaging alone is a huge consumer of paper and funds. Ten per cent of the cost of an average bag of groceries is spent on packaging. It makes up about 38 per cent of our discarded waste, including 90 per cent of the glass, 50 per cent of the plastics and 42 per cent of the paper in our garbage.

QPIRG Board Member Tim Egan sees increased public awareness as the first step in changing our habits. "It is important to attempt to reduce our garbage production by reusing materials wherever possible," he said.

"Whether that includes composting organic waste, using the packaging that comes with your food instead of buying separate products for food storage, or simply using both sides of a sheet of paper before recycling it, the bulk of our wasted material can be greatly reduced."

Volunteers should contact QPIRG at 398-6818 or 848-9869.



These are the proposed sites for the Montréal's recycling trial project

City stalls on recycling

by Tarek Razek

Toronto launched a city-wide recycling program last October and Ottawa has embarked on a 100 000 household recycling program. Nepean, Kitchener, Mississauga, even LaSalle and St. Lambert, all have similar projects with participation rates of about 70 per cent. Montreal does not.

Start saving those twinkie wrappers though, because Montréal has a recycling plan in the works. The executive committee responsible for public works announced last September that it had approved a pilot recycling project for the upcoming year.

The project was originally scheduled to begin in February, but has been delayed until at least April. Philip van Leeuwen of Ecosense, a Montréal group promoting recycling, blames the delay on the project's underfunding from the provincial and federal governments. He believes the municipal government is awaiting the new fiscal year and increased funding.

According to Michel Valois of Recyclage Orford, the prospective contractor for recycling in N.D.G., poor planning and insufficient public awareness caused the delay. Meanwhile, the city public works office blames it on trouble with the contractors.

The postponed project will eventually encompass the districts of Notre-Dames-de-Grâce, Pointe-aux-Trembles, and Ste-Sulpice, involving some 25 000 homes. Collection will be once weekly from the curb and twice weekly from central locations (parks and apartment complexes).

Recycling containers will be provided to homes for the collection of paper, cardboard, glass, metal, aluminum cans, and plastic containers.

Van Leeuwen believes the targets set by City Hall to reduce total garbage by 10-15 per cent are low. He points to Japan's recycling program which reduced municipal waste by 50-70 per cent. He also cites Seattle, where further investments in incineration have been rejected in favour of a total recycling plan, which has projected a 50 per cent reduction in waste within 10 years.

But until the program is implemented, Montréal garbage will continue to be incinerated. Municipal in-

cineration, according to Ecosense, is the greatest source of dioxin emissions in the country. It may also pose a threat to recycling.

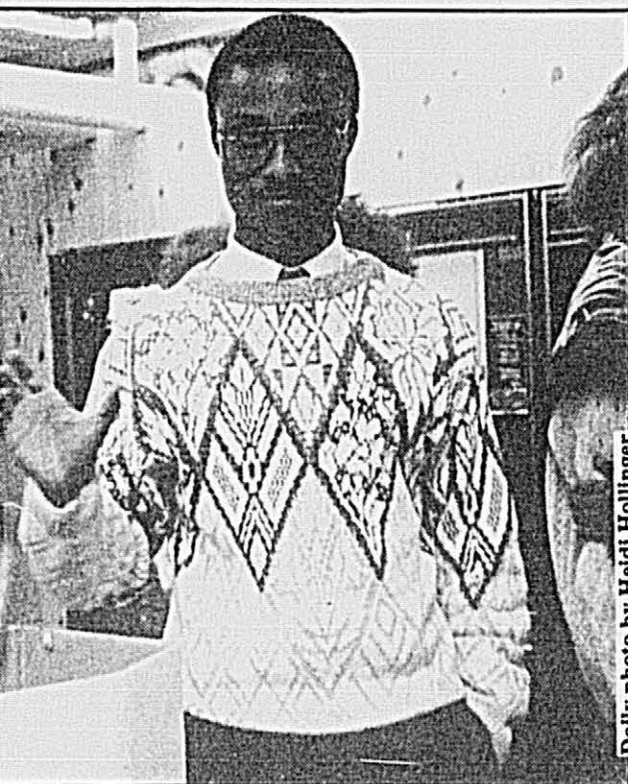
In order for the Des Carrières incinerator to be economically viable it must service a large amount of waste. A highly efficient recycling program would reduce the amount of garbage going to incinerators and landfills. Keeping the incinerator profitable will be pitted against the merits of recycling.

Groups in Montreal have been lobbying for recycling for over ten years, but it is only now that City Hall has decided to take action. According to Van Leeuwen, increased awareness of the negative effects of landfills and incineration have prompted the municipal government to take action. As well, most of the major landfill sites, including Miron quarry described by van Leeuwen as "one of the largest landfills in the world", are nearing capacity. To move to sites further away from the city is costly.

Valois says that with the present pick-up from recycling depots located in a few municipalities, plus the extra load from the projected pilot project he has no problem selling the waste. If the project expands to the entire city "there may be problems getting rid of the waste we collect because there has been a slow market development in the re-use of waste products."

A lag may develop between economical landfill and a sizeable market for recyclable goods, leaving the city with huge mounds of unwanted recyclable waste. At the beginning of the program, recycling will not be profitable. The need for new machinery, publicity, and government incentives to promote waste re-use industry development and participation will cost money.

It will also take time for the system to become self-sustaining and profitable. As a result, the City is seriously considering investment in new and improved incinerators which produce less ash than the older models. If these plans go ahead, the future of recycling will be sealed. If this project attains a high participation level, it may exert a strong influence on the City's next move.



Daily photo by Heidi Hollinger

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Much of our waste is treated by a process called 'mass-burn incineration', which is problematic at best. Mass burning involves the combustion of large quantities of refuse in enormous furnaces. To ensure the complete combustion of the waste, conditions within the furnace must be maintained at specific levels. Failure to do so results in incomplete combustion, the products of which are either released into the air or trucked to landfill sites along with the solid ash which is also produced by the process. This remaining ash usually amounts to 25 per cent of the initial bulk. According to the Earth Report, in

letters continued

To the Daily,

Even though the Daily has never constituted what I would call objective journalism, it has hit a new low with the article "Chewing the fatted calf over that God thing" which appeared on the front page of January 19th's paper. Furthermore, the "Ednote" which appeared in Monday's paper hardly constitutes a justification for the obvious slant of the abovementioned article.

If Brown and Sengupta had merely expressed their opinions on the Deslauriers-Horner debate, their article, although biased, would still have been within the boundaries of legitimate journalism. However, misrepresentation of fact, for example the referral to "aggressive bickering", goes beyond expressing an opinion, and in my opinion, constitutes slander.

I personally found the debate to be intellectually stimulating, with thought-provoking arguments presented by both sides, although Prof. Deslauriers' arguments could have possibly used more follow-through. Obviously, the reaction to a debate on a controversial issue such as the existence of God is coloured somewhat by the perceptions

of the individual who is listening, but I am sure that most people in attendance, regardless of their theistic beliefs, found the debate to be an intelligent discussion and not a childish argument as portrayed by the Daily.

As far as my personal interpretation of the debate is concerned, I think that Mr. Horner successfully proved that theism is a very logical world view. However, I don't expect everyone to agree with me on that point. As for the article which appeared in the Daily, the severe misrepresentation of fact which it contained could possibly suggest a paranoia on the part of the writers and/or editors. It must hurt when one's vain pretensions of having the only opinion that counts are shaken.

In conclusion, I think the Daily owes an apology to Prof. Deslauriers, Michael Horner, and the McGill Christian Fellowship for mocking and belittling their efforts in Thursday's article.

Stephen Clark

U3 Agricultural Engineering



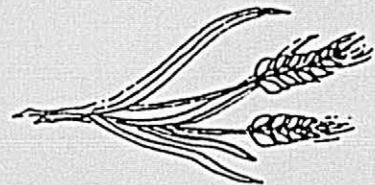
Letters



To the Daily:

I would like to commend Eric Smiley and George Sopel for their insightful letters regarding the "Does God exist?" debate. Smiley and Sopel each wrote a very accurate description of Tuesday evening's event, the Daily did not.

It was irresponsible to leave the news reporting to the following issue's "letters" page. Conceivably, your piece on the debate may have been composed almost entirely before it even took place, for all its factual content. After reading it, a friend of mine remarked that "the Daily has done to journalism what Jim Jones did to Kool-Aid".

Paul Hollingworth
Economics U3

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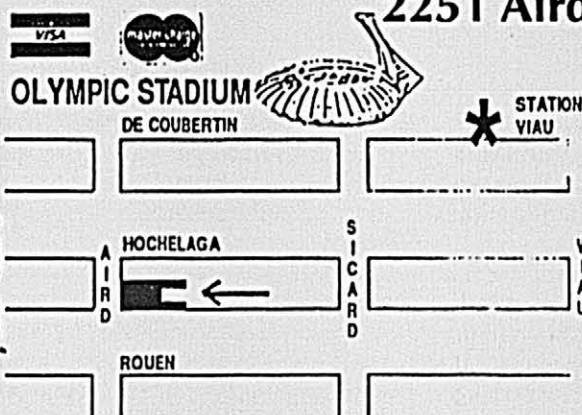
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RÉUNION ACTION COMMUNITY

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Notre place dans la société Québécoise

MEETING

Strategize, Organize, Mobilize
Our future in Quebec

Conférencier:

Speaker:

ROYAL ORR

PRESIDENT, ALLIANCE QUEBEC

LIEU: L'HOTEL DELTA - MONTRÉAL
475 Président Kennedy
(Métro McGill - sortie University)DATE: Dimanche, le 5 février 1989
L'HEURE: 14h00PLACE: HOTEL DELTA MONTREAL
475 President Kennedy
(Métro McGill - University exit)DATE: Sunday, February 5, 1989
TIME: 2:00 p.m.

Venez démontrer votre appui pour le travail que nous faisons pour votre communauté dimanche le 5 février 1989.

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Le patrimoine forestier est en danger

François Donneur

Tout cela avait commencé par une promenade dans les Laurentides. Je me faisais la réflexion, bien qualitative, qu'il y avait une quantité importante d'arbres gisants. Malgré la présence encore rassurante d'une forêt touffue, un doute me survint : C'est donc, le Canada, pays du bois et du papier, dont le folklore s'honore des maîtres-draveurs à la Menaud ou à Bellerose (si ce n'est pas les Beachcombers) de Colombie-Britannique, perdrait-il ses forêts?

Question troublante. Coïncidence, un excellent livre, *Un Patrimoine en Péril, la crise des forêts canadiennes* de Donald McKay (disponible aux Publications du Québec, Complexe Desjardins) nous posait la même question.

Les forêts au Canada emploient directement ou indirectement un Canadien sur dix. Malheureusement, la gestion du bois n'a pas été souvent à la mesure de son importance. A part la mise en œuvre de techniques de reboisement par des ingénieurs forestiers d'une trempe exceptionnelle (ils devaient souvent combattre les préjugés d'une partie de leurs propres employeurs), les exemples sont rares dans ce domaine. Il y a cependant des gens comme Ellwood Wilson. Dès les années 20, M. Wilson pensait que



relevé. Cependant, ce fut trop peu pour un mode d'exploitation vicieuse de sa richesse : au lieu de replanter, on coupe un peu plus loin! Aujourd'hui pourtant, les coûts de transport du bois aux usines aug-

mentant, force est de constater que la sylviculture a du bon.

Le problème de la sylviculture (élevage des forêts) est que, dans un climat canadien, une forêt prend en moyenne de 50 à 60 ans avant de se

régénérer, et seulement si les plantations d'arbres se font de façon appropriée! Donc, tout investissement est effectivement à très long terme. Mais il en va de la préservation de nos forêts encore vierges et de celles en exploitation et de leur rendement soutenu! C'est uniquement de cette façon que l'on pourra continuer à fournir et même à augmenter les emplois dans le secteur. La part du Canada dans les exportations en pâtes et papiers n'est plus que 19% dans le monde, comparativement à 30%, il y a 30 ans. Cependant, Donald McKay termine sa saga sur un appel à une saine gestion de nos forêts. D'ailleurs les expériences scandinaves ont prouvé la rentabilité du reboisement intensif. Mais, dans ces pays, les forêts appartiennent aux exploitants, que ce soit comme coopératives ou autres formes d'industries. Les propriétaires scandinaves se sentent directement con-

cernés par la régénération, contrairement aux industries canadiennes qui louent, la plupart du temps, la forêt du gouvernement.

Plus inquiétante encore est la menace que subissent les forêts de l'Amazonie, brûlées par les exploitants agricoles. La menace est brésilienne mais aussi mondiale car moins d'arbres égale plus de dioxyde de carbone dans l'atmosphère, égale effet de serre. Voilà ce que démontre, et bien d'autres choses, l'Atlas Gaia, *An Atlas of Planet Management* où la beauté des graphiques va de pair avec les statistiques environnementales. A lire aussi, le Asimov, *Foundation's Edge*, où une Terre-Entité vivante et consciente se présente : « Je suis Gaia ». Pour conclure, parlant de conscience, *Un commun futur (Our Common Future)*, connu aussi sous le nom de rapport Brundtland, en est une magnifique : le rapport de l'ONU sur l'environnement.

Vers un symbiose avec l'environnement

Elodie Ghedin
Patrick Louchouart

« La nature a des perfections pour montrer qu'elle est l'image de Dieu et des défauts pour montrer qu'elle n'en est que l'image » disait Pascal dans ses *Pensées*. Grand paradigme occidental soutenu par une religion où le temps et l'Homme sont œuvres de la création divine.

Bien que les mythologies du monde entier nous rapportent des histoires de création, elles n'en parlent que par fragments, sans chronologie précise. La religion

chrétienne, elle, a hérité du judaïsme ce concept de temps, de point de départ où l'être suprême et unique, créa toute chose à son plaisir. Les panthéons fertiles des philosophies animistes furent balayés par cette puissance originale. Dieu créa la lumière et les ténèbres, le ciel et les astres, la Terre, sa faune et sa flore. Et, emporté par son effort créateur, il créa l'homme : à son image. Dieu, dans sa bonté, laissa à l'Homme le soin de définir son entourage. Ce dernier établit ainsi sa dominance sur un monde physique, créé pour le servir.

Ainsi naît la dualité qui se retrouve à la base même de la religion chrétienne : d'une part, il y a l'Homme, travaillant à son propre salut et de l'autre, le reste de la création, à lui assujéti.

Une fois émancipé de ses superstitions païennes, une fois l'animisme rejeté, l'Homme ne verra plus qu'un monde que seule l'incompréhension et non plus la crainte, ne retiendra d'exploiter. L'esprit des objets naturels qui, auparavant, protégeait la Nature de l'Homme s'évapore. « Elle » ne résistera plus longtemps aux coups

de bêtises d'une curiosité emballée.

Et la religion chrétienne se déclare soudain porte-étendard de cette instigation féconde. Dès le début du treizième siècle, prit forme la théologie naturelle qui tente d'atteindre l'esprit divin à travers sa création. A l'encontre des théologies antérieures et orientales, la théologie occidentale cesse d'être contemplative et devient volontariste.

En 1967, le magazine *Science* publie un article de Lynn Whyte qui

suite à la page 12



l'entreprise forestière devait viser des objectifs à long-terme plutôt qu'exclusivement les bénéfices immédiats, afin que les usines de pâtes et papiers, créatrices de villages et de communautés fortes de 2 000 à 8 000 habitants, ne soient pas délaissées après 35 à 60 ans, faute de bois. Pour remédier à cela, il créa pépinières et développa l'aviation anti-incendies. D'autres hommes remarquables prirent la

Comment

We are what we slash and burn

Modern extinction rates are higher than ever before. Never have so many different species disappeared from the face of the earth in such a short time span. The current rate of extinction is estimated to be five to fifty times higher than that during the "Great Die-Off" of the dinosaurs. It is conceivable that within the next 50 years, one quarter to one half of all extant species will disappear forever.

The principal cause of the loss of species is the fragmentation of habitat. As humans increase in number, pressure on natural resources mounts. Forests are cleared for agriculture, timber, and grazing land. As a result, environments that support populations of plants and animals are transformed from their uninterrupted, continuous state into a patchwork of habitat 'islands' geographically isolated from one another. Available habitat is thus reduced to a fraction of its original quantity.

When this happens, large predators make it impossible to maintain viable population levels. As populations shrink, genetic variability is reduced. This means that in the face of long term environmental change a population does not have the genetic resources necessary to adapt to that change. Below a certain critical number of individuals a population becomes an example of the living dead. This process dooms whole floral and faunal communities to eventual extinction.

As natural communities are disturbed by human activity, ecological processes begin to break down. Species that are better able to withstand the impact of change begin to outcompete those which are less adaptable, and other species not usually found in a particular region invades. The result is the disruption of a balance that took millions of years to evolve.

That balance is an extremely complex web of ecological relationships. The tropical biome is perhaps the most awe-inspiring example of ecological complexity. Tropical ecosystems have evolved built-in safeguards, and are considered to be relatively stable and resilient to disturbance. However, these safeguards have limits, and at this very moment so-called 'development projects' in the tropics are pushing them to the breaking point.

To lose the tropical forests of the world would be to lose an integral part of the global biosphere. They pump out the vast quantities of oxygen

necessary for life to continue on the planet. The transpiration of tropical vegetation also influences the global water cycle. These two functions alone are critical to the maintenance of the biosphere, without which humanity cannot survive.

As human beings increasingly lose touch with the natural world, the feeling that we are intimately linked to the environment is diminished. How many people are aware that most of the drugs on which industrialized nations depend come from plants and animals that live in the tropical forests? By destroying tropical ecosystems we not only lose the sources for many vital substances currently in use, we also deny whatever opportunities might present themselves in the future.



Native peoples have knowledge that could unlock much more of the potential of their surroundings than science has done so far. Instead of paying heed to this fact, we surge ahead in the name of progress and exterminate native cultures in the process. When native cultures are displaced, the intimate knowledge they possess about their ecosystems is lost with them.

How long will we cling to the idea that we are somehow separate from the rest of nature and exempt from the evolutionary mechanisms that created us? Short term economic gain cannot continue to be the primary goal of governments if we want future generations to have clean air and water. We can no longer afford to hold on to utilitarian, anthropocentric values.

Christopher L. Callaghan

... Ladakh

continued from page 5

houses, for example, can provide each village with fresh vegetables throughout the winter and eliminate costly imports. "It makes more sense to reduce distance between producers and consumers because

less energy is needed."

The biggest problem the centre has run into has been lack of government support. "When governments ask her, 'Well, can people pay for these solar things?' I ask them, 'Can people afford to spend billions of dollars on nuclear and hydro-electric projects?'"

She hopes the recent international attention the centre has attracted from the support of Himalayan explorer, Sir Edmund Hillary, will help attract more financial support.

Norberg-Hodge admits her work is often dismissed as 'romantic', but she says equating cultural

survival with romantic idealism is a fallacy. "People in Ladakh had their own culture and enough food, clothing and shelter before the influence of the West." In the name of technological realism, she says the Ladakhi have been given underdevelopment. Appropriate development can happen only if their culture remains intact.

...symbiose avec l'environnement

suite de la page 11

soutenait cette conception provocatrice. Celle-ci déclarait que, premièrement, d'un point de vue historique, la science moderne est une extrapolation de la théologie naturelle et que, deuxièmement, la technologie moderne est en partie expliquée comme étant une réalisation du dogme chrétien qui soutient la transcendance de l'Homme et de son juste droit sur la Nature.

La mariage moderne de la science et de la technologie, alimenté par cet esprit d'Hubris, où le sentiment démesuré de supériorité face à la Nature, apporte à l'Homme un pouvoir jusque-là jamais égalé. Et si l'on en juge par les désastres écologiques actuels, il serait erroné de croire que les progrès technologiques et scientifiques sont strictement représentatifs du progrès de l'humanité.

Malgré Copernic, le cosmos tourne toujours autour de notre petit globe. Malgré Darwin, nous nous considérons toujours à part du processus naturel. La crise écologique est une leçon d'humilité pour l'Homme. Il est grand temps de rejeter notre attitude parasitaire et de rechercher un symbiose avec l'environnement.

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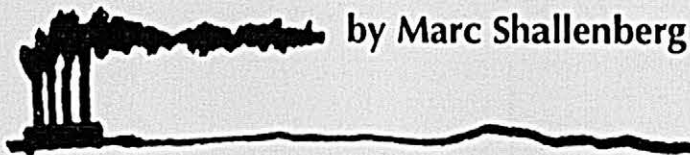
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Biologists search for signs of stress

Sending up a flare

The discharge of pollutants into the environment is increasing at an alarming rate and ecologists are now faced with the problem of detecting the impact of these pollutants on the ecosystem. Finding an indicator of anthropogenic stress in natural systems is vital today, when environmental policy is no more than political reactions to environmental damage once it has occurred.



by Marc Shallenberg

Ecologists must prove that a system is deviating from the norm at the earliest possible stage so that governments can be informed of the problem, and the damage can be minimized.

Many scientific approaches have been used to assess environmental damage by contaminants, and these have had varying degrees of success. One of the more innovative approaches stems from research being done here at McGill by Dr. Joe Rasmussen of the Limnology Research Centre in association with Environment Canada.

Pollution enters aquatic systems from two principal sources—point sources which discharge contaminants directly into the water, or from the atmosphere in the form of toxic precipitation or dry deposition.

The atmosphere is the largest source of contaminants to terrestrial and aquatic environments. The vast majority of active pollutants reside in the atmosphere either as a result of being discharged into the air as industrial by-products (acid rain-causing emissions, CO₂, etc.) or as a result of the evaporation of chemical products released into the environment (pesticides, PCBs).

Perhaps the most common approach to determining stress on organisms resulting from contaminants is the toxicological test called the LD50 (or lethal dose 50). In this laboratory test organisms are subjected to increasing doses of contaminants, in an effort to determine the concentration necessary to kill 50 per cent of the test organisms (often microorganisms). This allows the toxicity of contaminants with respect to an organism's physiology to be determined. Its broader biology and ecology are ignored.

In addition, the toxicity of any one contaminant once added to the hundreds, even thousands of other contaminants in the ecosystem may be quite different than in a controlled laboratory setting.

Outside the lab, contaminants and their toxicity are actually modified by a number of different processes. Contaminants can be modified by bacteria in water and soils as

well as by other processes such as digestion by organisms and reaction with natural or synthetic (including other contaminants) organic chemicals.

This may result in the contaminant becoming detoxified or having its toxicity increased. These new toxins are produced in the environment from precursors that we have supplied and their production may be impossible to predict due to the extreme complexity of the production processes.

Although LD50s may be useful in determining the acute toxicity of a substance in a laboratory or in direct effluents, many aspects of an organism's biology and its environment which may alter a substance's toxicity are ignored.



Historically, the field of limnology has investigated the productivity and biomass of organisms (phytoplankton, fish, bacteria, etc.) in aquatic ecosystems. The first pollutant to be a major concern for limnologists was the nutrient phosphorus. When released into the environment, mainly through detergents and human and animal wastes, phosphorus greatly increases the biological productivity of aquatic eco-

systems.

All this experience in measuring and predicting biological productivity, biomass and nutrient dynamics, has led researchers to employ this expertise to detect ecosystem stress due to toxins. But this approach has not been successful.

The major problem is that the indicators of pollution stress are not sensitive enough. By the time levels of whole phytoplankton or fish communities decrease in response to pollution stress, there are usually only a few species left. In other words, the levels of production or standing stocks of functionally related groups of organisms are not affected until the most resistant species within the groups begin to function abnormally. Clearly, a more sensitive indicator of pollution stress is required.

Another approach researchers use to detect pollution stress in the environment is the monitoring of contaminant levels in various species of organisms. This can be useful in determining the accumulation of specific contaminants in organisms and in various compartments of the ecosystem.

Yet the problem remains that the biological modification of contaminants into new compounds could possibly result in altered toxicities. These toxins would not be picked up by monitoring programmes geared to measuring specific (well characterized) toxins. As a result, this approach reveals nothing about the ecological impact of the toxin level in the environment as a whole. Is there damage being done by this toxin at this level?

To understand the complexity of this question, imagine a pristine (unpolluted) ecosystem - we have to imagine because there probably remain none in the north temperate zone.

As pollution is slowly introduced into this ecosystem, a point is reached at which pollution in the system is detectable using the most sensitive instruments available.

As pollution inputs increase, levels of pollutants in organisms will increase at various rates resulting in the extinction of the most sensitive species. If this continues, more and more species will succumb until there are only the most resistant species left - perhaps a few microbes that have been able to adapt to the extreme stress imposed on them.



David Schindler and his colleagues at the Experimental Lakes Area in north-western Ontario have studied real situations analogous to the one described above. They experimentally manipulated whole lakes and drainage basins by gradually adding various pollutants including phosphorus, sulphate and nitrate (principal components of acid rain), heavy metals, etc..

This may seem a rather brutal, if not hypocritical approach to solving pollution problems. But the scope of these studies and the expertise involved has resulted in the most useful information yet dealing with the problem of ecosystem

ties and were almost always lost first. These species may be termed *indicator species*, since their loss means that disaster is looming if something isn't done to reduce the pollutant level. Unfortunately, most of the indicator species are not widely spread across the temperate zone.

This technique increases the sensitivity of the test, especially when combined with the monitoring of contaminant levels within the indicator species, before they are lost. In this way, the impact of pollutants on the environment can be detected at its earliest stage and serious damage can be avoided.

Studies reveal that certain organisms are particularly susceptible to contaminants, and are almost always lost first. The loss of these species indicates that disaster is looming if something isn't done to lower pollution levels.

stress. More than 15 years of involvement with this type of research has convinced Schindler that careful monitoring of the species composition in ecosystems is the most sensitive indicator of the impact of pollution on the environment.

Before injecting pollutants into these systems, the researchers compiled detailed lists of the species present as well as their abundances. As pollutants were added to the system, careful monitoring was done to trace the fate of the species present.

Nearby lakes that were similar to the experimental lakes were also monitored as controls to be certain that changes in the species composition of the experimental lakes were not general responses to short term climatic change, but specific responses to the additions of the pollutants.

These detailed studies revealed that there were certain species of organisms which were particularly susceptible to contaminant toxic-

But there are two problems with this approach. The first is its dependency upon long term monitoring. The second is the difficulty of controlling species changes not caused by pollution (eg. climate). For instance, suppose we decide to monitor a lake's phytoplankton species composition. How do we know that this lake hasn't already undergone significant changes in community structure due to anthropogenic stress?

In the absence of careful historical records of species composition we will be forced to hold as a standard a community structure which has already been affected by pollution to an unknown degree. Since the major source of contaminants for most lakes is the atmosphere, it is impossible to use a nearby lake as a control because it will be receiving proportional amounts of contaminant.

continued on page 14

... signs of environmental stress

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Yet this approach to determining the ecological impact of pollution is promising. If more widespread indicator species can be found that become affected at different levels of pollution, the presence or absence of an indicator species in a lake could reveal the degree of impact of certain pollutants on the lake.

Rasmussen is working on a new technique which could revolutionize the monitoring of pollutants in the environment. He is making use of newly developed biotechnology, namely bacteria which allow for the direct assay of genotoxic substances in the environment. When these bacteria are subjected to genotoxic substances (substances which cause DNA damage and may be carcinogenic) they respond by the induction of a gene resulting in a colour change in the medium.

Rasmussen hopes to adapt this technique to be used for simple, rapid screening of genotoxicity in water and sediment samples. In addition, samples of water and sediment can be pre-treated with natural substances such as liver

enzyme extracts, dissolved organic carbon (found throughout aquatic ecosystems), digestive enzymes, and natural energy sources such as sunlight and heat to test whether chemical modification by any of these substances enhances the genotoxicity of the samples. This provides a more accurate measure of the danger of chemicals once they have interacted with the ecosystem.

Rasmussen sees this as a potentially important improvement in ecosystem monitoring. "We just don't know what happens to the chemical soup when it begins to react with the environment. It is

possible that chemicals released into the environment that are relatively harmless may turn into extremely serious and persistent toxins through the interaction of these chemicals with the biological and chemical constituents of the ecosystem."

This technique may not only allow scientists to rapidly determine the potential stress on the environment imposed by pollutants, but may also provide the means to study highly complex interactions between contaminants and the ecosystem.

Regardless of the methods used to assess the impact of pollutants on

the environment, this knowledge is useless if we don't decide exactly how far we are willing to let environmental damage progress. This may be the most important question facing environmental decision-makers in the future. It is something we should all ask ourselves. Some may feel that when pollution levels are high enough to be measured with our most sensitive instruments we have already damaged the environment, and we must stop further pollution.

Others may believe that pollution should be permitted until the most sensitive indicator species have been eliminated, or until the degree of mutagenicity is double or

triple the background level. These are tough questions that nobody wants to confront.



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361 ARTICLES FOR SALE

Double bed - frame, box spring & mattress. Very good condition. \$100. Call Debbie 932-1097. Leave message.

363 TO GIVE AWAY

Kind, responsible surrogate parents wanted for extremely playful cat - phone 349, Derrick.

367 CARS FOR SALE

CAR FOR SALE - 1979 Cutlass Salon. \$600 (negotiable). Call Salim anytime at 341-4762.

372 LOST & FOUND

Lost - Wool, navy blue Kangol cap. Somewhere in Otto Mass or Union on Monday, Jan. 16th between 2 and 6 pm. Sentimental Value. Call Paul 277-6154.

LOST: Brown leather jacket - lined - lambswool, pockets have I.D., keys. Where: Annie's Bar - Thursday Evening, January 19th. If seen or found please contact Michelle at 284-5606.

Very, very upset. Lost Friday 20th a gold bracelet on campus. Christmas Gift. Reward. Please call: 282-6622.

Lost - Multi-colored wallet at the corner of Sherbrooke and Aylmer on Friday, January 20th between, 8:30 - 9:30 am. Call Heather 844-6403.

Found 1 WINTER SCARF on campus on Tuesday 24th of January call Candelaria at 931-5298.

Whoever "acquired my Walkman/Wallet last Thurs. Jan. 26, at the Currie Gym, please return wallet & cards. Cards all cancelled, ID useless to you, critical to me. Have a heart, save me hassle.

Call 284-5499 for details.

FOUND: at student Union Building Friday. GREY MITTENS. Owner call 733-8935.

Lost: gold chain with cross on Thur. Jan. 19. Sentimental value. Reward. Please call 398-9331.

Lost: Thin gold chain bracelet on Fri., Jan. 20th. Please call 626-2434. Reward offered.

Lost black beret and navy blue mitts Wed. 25. beige wallet containing all my ID! Thurs. 26 McConnell, FDA or RVC. Call Heather 284-7768, after 8 p.m.

FOUND: 1 ear ring on University Street, Wednesday Jan. 25. Contact McGill Daily - B-17.

374 - PERSONAL

Need Information? Feeling lonely? Just want to chat? Then call McGill Nightline! We are students talking to students. 398-6246, 7 days a week, 6 p.m. to 3 a.m. Anonymous and confidential.

Gays and Lesbians of McGill offer a peer counselling service, Monday through Wednesday, from 7:00 pm to 10:00 pm. 398-6822. It's a chance to talk.

Frosty says...

"Save the environment. Recycle your beer - drink piss."



Dear Frosty, you stupid boring and ugly. A Fan.

Dear Fan. See above.

For the second time around. Applicants at cost. Birth Control Co-op, Women's Union. Union 423. 398-6823.

Astrology: Do you have more questions than answers about yourself and what's happening? Then it's time to get your chart done. For a

detailed session call 844-6267.

Hey short, sexy, and grey-haired rowing coach; you can rush my slide anytime! The Passionate Paddler.

HAPPY BIRTHDAY STEPHANIE! Have a great day after a fantastic weekend! Hope you enjoyed the pie. Cake at Andrea's tonight. Love Karen.

383 LESSONS OFFERED

FITNESS WITH PLEASURE: Personalized consultations in your own home or office. Rick Blatter, B.Ed., CFA, Health & Fitness Consultant. Office Hours: Saturday mornings 05h30 - 13h30, 652-1352.

LEARN A NEW LANGUAGE, SWAP YOUR MOTHER TONGUE! Reciprocal conversation Language lessons in French, Spanish, Chinese, Italian, ETC. ... TROCTEL - The Language Exchange - 272-8048. A cross cultural network.

FLUTE lessons/Cours de flûte traversière. Theory, rhythm, for beginners or advanced. Call 388-5164.

385 - NOTICES

ANIMALS: Tools or Sentient being? Help reduce the pain & suffering of earth's animals. Steve 272-5064.

St. MARTHA'S IN-THE-BASEMENT: Informal, ecumenical worship for a University community every Sunday, 10:30 am, 3521 University. (in the basement). Info: Rev. Roberta Clare, 398-4104.

\$2.50 Tuesday... Israeli Folk Dancing. Tuesdays beginning Jan. 31, 1989, 7:00 p.m. Hillel House, 3460 Stanley St. Professional instruction by Peter Smoksa. For more info. contact Carrie - 848-7492, Ronit 845-9171

The McGill Journal of Political Studies is calling for papers for its 1988-89 issue. Papers may be submitted in English or French. Leave a photocopy of your essay in the PSSA MAILBOX, in Leacock 443. Extended deadline February 4th.

"Why is the Ramp Red?"

"Will the new Co-ed residence be nicer than McConnell?"

"Where are our new athletics facilities anyway?"

TAKE A FEW MINUTES TODAY AT NOON TO FIND OUT.

Annual SSMU General Meeting
Room B09/10
Today, Jan. 30th, 1989
12:00 noon

Don't worry, it'll be informal, short, possibly interesting ... and there's free coffee...
SEE YOU THERE!

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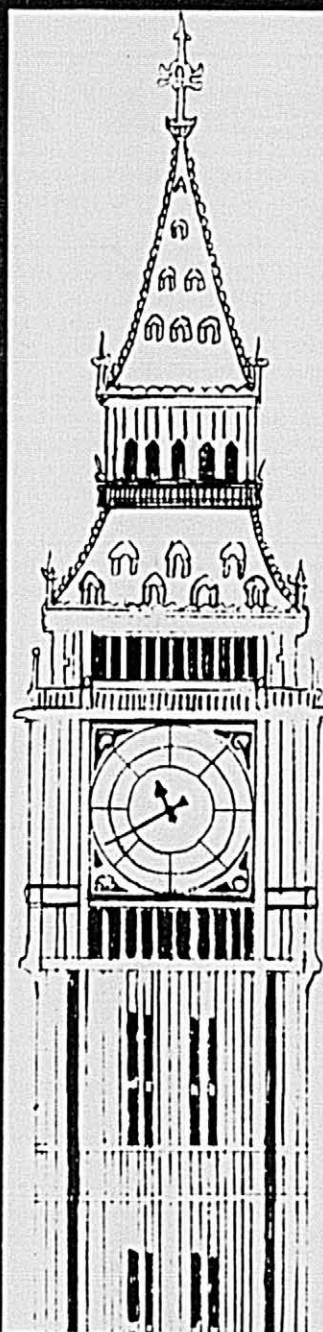
Department of Political Science Speakers Series presents

Professor Robert Fox
York University

***"Economic Restructuring
Social Forces
and World Order"***

Wednesday, February 1, 1989
11:00 a.m.
Arts Council Room

For further information, please contact
Professor James Booth, 398-5064.



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March 3, 10, 17, 23 (Thursday), 31



Return

Sundays, 3:30 p.m.
Unicentre, University of Ottawa
February 5, 12, 26
March 5, 12, 19, 27
April 2

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See the National Art Gallery

Catch Ottawa's "Winterlude", Feb. 3-12!